# Upper Snake Region Fisheries Newsletter ~ 2006 ~

Issue 2 January 2007

**Regional Fisheries Program Staff**


- Jim Fredericks, Regional Fishery Manager (jfredericks@idfg.idaho.gov)
- Dan Garren, Regional Fishery Biologist (dgarren@idfg.idaho.gov)
- Bill Schrader, Sr. Fishery Research Biologist (bschrader@idfg.idaho.gov)
- Damon Keen, Fish Hatchery Assistant Manager, Henrys Lake (dkeen@idfg.idaho.gov)

Contact us at: (208) 525-7290

4279 Commerce Circle
Idaho Falls, ID 83401


***Eighteen mountain lakes were stocked with either grayling, golden, cutthroat, or rainbow trout in the Upper Snake Region in 2006 with horse, backpack, or helicopter.***

***Welcome*****.....***to the second annual Regional Fisheries Newsletter. Last year we were delighted with the interest in the accomplishments and efforts of the fishery program in the Upper Snake Region. It was a clear indication of people's desire to learn more about the area's fisheries and what the Department is doing to manage and improve them. This brief report covers activities that we consider highlights and topics of the greatest interest, but is by no means exhaustive. If you have questions or comments about the activities described herein, or any other aspects of the regions fisheries, please don't hesitate to contacts us. Good fisheries management is as much about people as it is fish populations. We can most effectively serve the public if anglers stay informed and involved, so we're always happy to hear from you!*

## Big Lost Mountain Whitefish Conservation Efforts Underway

In response to a decline in the population of mountain whitefish in the Big Lost River drainage, IDFG has led an effort to develop a conservation and management plan. The plan, developed with help from Trout Unlimited, Big Lost River Irrigation District, US Forest Service, Bureau of Land Management, US Fish and Wildlife Service and several landowners is designed to identify problems and improve habitat for the population. Very little is known about habitat needs and migrations of mountain whitefish. For this reason several assessment projects have been completed, or are currently underway, to identify actions necessary to improve the population. In the past two years the collective agencies and groups have completed population surveys, movement studies, fish barrier inventories, and fish entrainment studies.

Construction of a fish ladder was recently completed on one of the large diversions on the upper Big Lost River

Implementation began in 2006 with construction of a fish ladder on one of the largest fish barriers in the upper Big Lost River. This cooperative project, which was led by Trout Unlimited, will prevent whitefish and trout from being stranded below the diversion in future years. Fish ladders are now underway on several other water diversions on the lower Big Lost River.

## Mountain Lake Stocking Program

The Upper Snake Region is blessed to have over 50 mountain lakes, most of which are in the Big Lost River drainage. Of these, over 30 are stocked with fingerling fish every two to three years. A few others have sufficient natural reproduction to provide a fishery. Over the past three years, IDFG, in cooperation with the US Forest Service, has surveyed each of these lakes to assess the fisheries and refine stocking rates. The main goals of the program are to maximize the effective use of hatchery fish, manage for a diversity of species, and maintain catch rates of at least one fish per hour, while still maintaining fishless lakes that provide valuable amphibian habitat.

In 2006, we stocked 18 regional mountain lakes with either grayling, golden, cutthroat, or rainbow trout. Though the inaccessibility of a few lakes requires the use of a helicopter, the vast majority are stocked by backpack or horses. We will continue to monitor these fisheries in order to provide high quality fishing for anglers who enjoy the alpine experience.

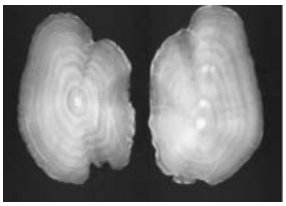
## Henrys Fork Population—and Access—Continue to Improve

IDFG annually surveys trout populations in the Box Canyon and reaches of the lower river. Years of population data and overwinter survival studies clearly show that the most important factor driving fish populations below Island Park Dam is winter flows. The recent drought brought low winter flows and a noticeable decline in the Box Canyon population. The 2003 estimate of catchable size fish was about 1,600/mile, compared to the longterm average of almost 3,000/mile. The population began to improve in 2005, and by 2006 the number of catchable size fish was estimated at 2,603 fish per mile—a 35% increase over 2005 estimates. Perhaps even better news is the fact that flows during the current 2006-07 winter are the highest they've been since 2000, and we expect another large population increase in 2007.

We also sampled from Vernon to the Chester backwaters, where we found species composition of 95% rainbow trout and 5% brown trout. The estimated population was 1,056 trout per mile, similar to previous estimates. Interestingly, the number of fish over 16" was extremely high, leading to the question: where are the juveniles? For more, see story below.

In 2005 anglers were on the verge of losing the use of the boat ramp at the Vernon bridge, which was located on private property. Fortunately, a cooperative effort with Fremont County, Henrys Fork Foundation, and IDFG resulted in the construction of a new boat ramp and a large parking area below the Vernon Bridge. The new access has greatly reduced conflicts with landowners. This past year the parking area was improved and the Upper Snake Flyfishers helped IDFG construct a set of stairs from the parking area to the ramp. By using the new access and respecting the wishes of adjacent landowners, anglers are assured access to the lower river for years to come.

## Cutting Edge Technology to Help Understand Lower Henrys Fork and Fall River Populations



***The chemical composition of a fish's otolith (or ear bone) is affected by the water where it lives. Therefore, otoliths can sometimes be used to identify the stream or streams a fish lives in throughout its life.***

In 2006 we also conducted population surveys on the Fall River from the 3800 bridge to the Enterprise Diversion. We found moderate numbers of rainbow trout (about 575 fish per mile), and high densities of mountain whitefish (over 2,000/mile). Interestingly the size structure confirmed what anglers have long observed—most of the fish are less than 12 inches. Although aging of the fish is still in progress, the population appears to be made up primarily of juvenile fish. This is particularly interesting considering that we see the inverse of this size structure on the Henrys Fork, where the sampled population is made up primarily of adults. The population structures and accounts of spawning migrations from the lower Henrys Fork to the Fall River suggest the Fall River may be an important spawning and rearing area for the lower Henrys Fork.

To gain a better understanding of the relationship between the Fall River and the Henrys Fork above and below Chester Dam, IDFG is teaming up with the Henrys Fork Foundation and the University of Idaho to assess fish life history patterns using otolith microchemistry. Otoliths are small bones in a fishes ear that biologists have used for decades to determine a fish's age using annual growth rings. New technology is now being developed that uses the chemical composition of the otoliths to determine where the fish has moved throughout its life. Sound complicated? Technically it is, but in theory it's really quite simple. The chemical composition of an otolith is affected by the water chemistry where the fish lives. Generally, different streams have different water chemistry. If the water chemistry is sufficiently different between streams, the otolith will have a different composition as a fish moves between those streams. By looking at the composition of the very center of the otolith, we should be able to determine what stream, or river, the fish came from. It's also possible to look at the chemical composition throughout the fish's life to learn when it moved from one stream to another.

This technology will hopefully allow us to determine the percentage of fish in the lower Henrys Fork that were produced in the Fall River. By better understanding the life history and migration patterns of fish, we are better able to prevent detrimental impacts to the population and implement effective habitat and migration improvement projects.

In addition to the developing otolith microchemistry study, IDFG is assisting the Henry's Fork Foundation with a fish migration study using the traditional technique of radio-telemetry. Over 50 fish have been surgically implanted with radio tags between Chester Dam and St. Anthony, and are being tracked on a weekly basis. This study will provide additional information on the movements of trout in the lower river. In addition to helping understand migration patterns, the study will help us understand how fish are affected by irrigation diversions and canal entrainment.

# Henrys Lake: 2006 Brings a Successful (and Longer) Season

By most accounts, Henrys Lake is back and, if not better than ever, it's awfully close. After suffering the effects of drought from 2001-2004 the fishery was much improved in 2005, and 2006 was even better. As reflected in gill net catches the cutthroat population was slightly above average (Figure 1), and the number of large hybrids has never been better. Anglers caught numerous hybrid trout over 10 pounds, with a few reaching the 14 to 15 pound mark. The brook trout fishery continued to improve—a direct result of the re-implementation of the stocking program in 2002, and several five pound fish were caught.

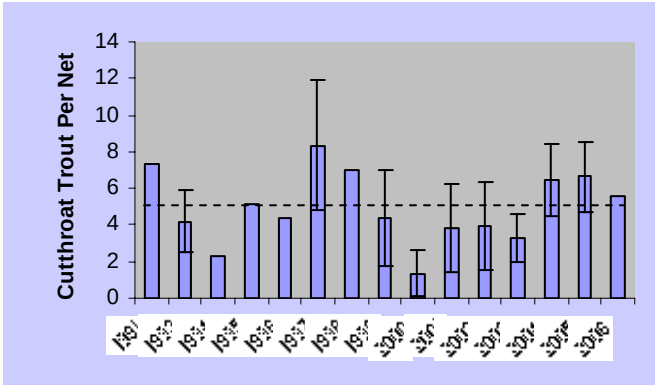



**Figure 1. Annual gill net catch of cutthroat trout in Henrys Lake. Dashed line represents average number per net since 1991.**

2006 brought new rules to Henrys Lake. The restriction on fishing hours was lifted and the season was extended to November 30. The changes raised concern with some anglers about excessive harvest at night and in November. Enforcement and fisheries staff increased patrols and conducted night time surveillance throughout the season. Though a few anglers tried night fishing early in the season, it seemed that catch rates were no better than during daylight hours and effort was almost non-existent. No violations were detected.

The November 30 season extension resulted in very little open-water fishing effort. Though catch rates were good, the cold, windy weather and ice around the shoreline kept most anglers away. The last five days of November, however, brought enough ice to support an ice-fishery. Catch rates were exceptional, and the word of the fishery quickly spread. We counted 124 anglers during the brief ice fishery, most of them on the final two days of the season. Though most anglers harvested at least one fish, there were no instances of over limits, and the majority of fish were released. By the time it closed, the total harvest was less than 250 fish, which will have no impact on the overall fish population. We did, however, see potential for conflicts related to trespass and parking in the Staley Springs area, and we will be developing alternatives with landowners and anglers to minimize potential problems.

***Though the ice-fishery was very productive, it lasted less than a week and only about 250 fish were harvested.***

# Radio-tagged Fish Help Understand Henrys Lake

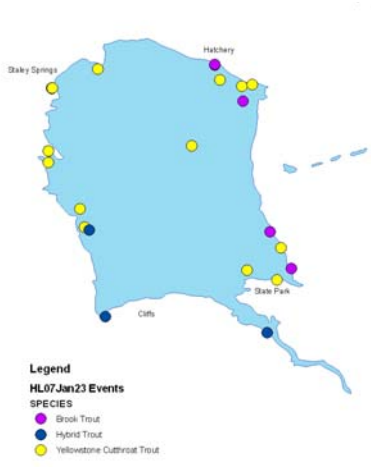



**Figure 2. Distribution of radio-tagged fish in Henrys Lake six weeks after being released in front of the hatchery.**

In a cooperative effort with the Henrys Lake Foundation, 30 fish have been fitted with radio tags to help understand seasonal movements and habitat use throughout the winter. The fisheries crew surgically implanted tags in 17 Yellowstone cutthroat, 4 hybrid, and 9 brook trout in December. The fish were collected near Staley's Springs, Pittsburg Creek, and the State Park. After surgery, the fish were held in the hatchery for a week and then released near Hatchery Creek. Within six weeks, fish had distributed widely around the shoreline (Figure 2).

Dan Garren carefully sews a fish up after inserting a radio tag into its abdomen.

Biologists have long wanted to know where fish spend the winter in Henrys Lake. Specifically, whether fish congregate in a limited number of areas, or if they stay distributed throughout the lake as oxygen levels decrease in late winter. The fish will be tracked throughout the next year, not only helping to understand winter distribution, but providing information on spawning activity as well.

# South Fork of the Snake River

## Conant Electrofishing Surveys Bring Mixed Results…

Our annual electrofishing surveys near Conant indicate the cutthroat population is about 1,200 fish/mile. Although this is still well below the long-term average of 2,238 fish/mile, it is an increase of about 13% over 2005 and is well above the low point of 771 fish/mile in 2004. The increase in the cutthroat population is likely the result of increased flows in the spawning and rearing tributaries. Also encouraging is the improved size structure of cutthroat trout. The proportion of 16 inch and bigger cutthroat is the best we've seen in 10 years.

The bad news, however, is that the rainbow population also increased in 2006. We estimated almost 1,100 fish/mile, an increase from 678 fish/mile last year (Figure 3). This is largely the result of a strong year-class of yearling fish from 2005, indicating the 2005 spring flows were not sufficient to minimize spawning success of rainbow trout. Fortunately, spring flows in 2006 were higher and should have a greater impact on rainbow trout.

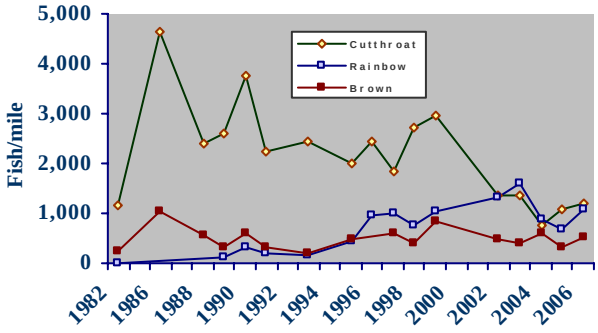



**Figure 3. Population trends of cutthroat, rainbow and brown trout in the Conant electrofishing reach of the South Fork.**

## Success Depends on Rainbow Harvest

As most people who fish the South Fork know, IDFG and Trout Unlimited have aggressively encouraged anglers to harvest rainbow trout to maintain the world famous cutthroat fishery. The 2006 population surveys demonstrate the importance of keeping this effort up. Although spring flows are proving to be a valuable tool in the effort to keep the rainbow population in check, there will be some years when water managers will not be able to provide naturally shaped flows due to flood control, and irrigation demands. For this reason, a healthy cutthroat fishery depends in part on anglers harvesting the adult fish and reducing the number of spawners. Throughout 2006, we conducted a tagging study in the South Fork to estimate the harvest rate of rainbow trout. The results show that anglers are harvesting more rainbows than they were prior to the rule changes, however, the exploitation rate was still only 15-20%. To effectively reduce the number of spawning rainbow trout, the harvest rate will need to be increased 2-3 times that. **Remember, harvesting fish is sometimes the "right thing to do"!**

## …While Lower River Sees Big Increase In Brown Trout

IDFG also samples a 3-mile reach of the "lower river" near Lorenzo each year. In 2006 we saw a moderate increase in the cutthroat population to nearly 200 cutthroat trout/mile. Though up from 122 fish/mile in 2005, cutthroat density is still well below the long-term average of 493 fish/mile for that reach. Fortunately, we continue to find almost no rainbow trout in the lower river.

The big surprise was a notable increase in brown trout numbers. The estimate was just over 2,800 fish/mile, which is more than double the previous estimates. The combined cutthroat and brown trout populations resulted in the highest ever overall trout densities in the Lorenzo reach at just over 3,000 fish/mile. The increase in the population was largely due to a very strong age-class of yearling brown trout, indicating that 2005 was a very good year for brown trout reproduction and overwinter survival. What this means is that angler should enjoy some outstanding fishing in the lower river over the next few years as the young fish recruit to the fishery.

## High Water Compromises Tributary Trapping Efforts

As anyone who's ever tried to trap fish in snowmelt driven streams knows, high water can mean trouble. Over the past five years, IDFG has been working to prevent the invasion of rainbow trout into critical cutthroat spawning and rearing tributaries of the South Fork. Through annual modification and improvements to the traps we've been able to collect the majority of upstream migrating spawners on most years. 2006, however, was not like "most years." The high snowpack combined with the timing of the runoff resulted in water conditions that made fish trapping virtually impossible at Pine Creek and very difficult at Burns, Palisades, and Rainey creeks. The high water brought a volume of woody debris and gravel bedload that we had not seen prior to 2006. Despite long, strenuous hours from our staff and the hard-working volunteers, mother nature kept the upper hand, decreasing the effectiveness of the weirs.

IDFG is currently evaluating alternatives to determine if a trap can be designed that will function through runoff events such as 2006.

High flows in May deposited a large amount of gravel on the "floating" weir panels at Palisades Creek.

# Island Park Management Plan Set to Improve Fishery

The fishery in Island Park Reservoir has suffered since the onset of the most recent drought, leaving many anglers wondering what can be done to improve it. In an effort to answer that question, the fisheries staff has conducted an extensive review of the history of the reservoir's fishery and management strategies. Historically, the fishery was commonly believed to be driven by the number of non-game fish (chubs and suckers) in the reservoir. Since 1958, IDFG has periodically treated the reservoir with rotenone, a chemical used to kill unwanted fish. It was most recently treated in 1992. IDFG has conducted periodic angler creel surveys and used gillnets to evaluate the fishery in the reservoir for over 50 years. The gillnet and angler catch rates provide a useful basis to evaluate the effectiveness of these treatments along with other factors such as stocking rates and reservoir drawdown.

Though no one expects rotenone to completely eradicate chubs and suckers in a large reservoir, the assumption is that the trout fishery will improve with the reduction in non-game fish for 4-6 years following the treatment. As part of IDFG's recent review of the fishery, we looked at angler catch rates since 1950 to evaluate whether the fishery actually had improved in the five years following a rotenone treatment compared to the years just prior. Interestingly, they hadn't. There was no statistical difference between angler catch rates in the 5 years following rotenone versus all other years (Figure 5). Though this comes as a surprise and is not what we'd expected to see, it clearly demonstrated that, while non-game fish may have *some* impact on the fishery, there are much bigger factors at work.

IDFG has used gillnets to assess fish populations in Island Park Reservoir since 1960.

So if non-game fish aren't to blame, and rotenone isn't the answer, what is? Gillnet and angler catch rate data show that reservoir carryover (the amount of water left after the irrigation season) and stocking rates are the primary factors that drive the fishery. Because the reservoir was constructed for irrigation, keeping more water in the reservoir is not an option. Fortunately, the wetter weather we've had since 2004 has brought carryover back up to and above average the past two years.

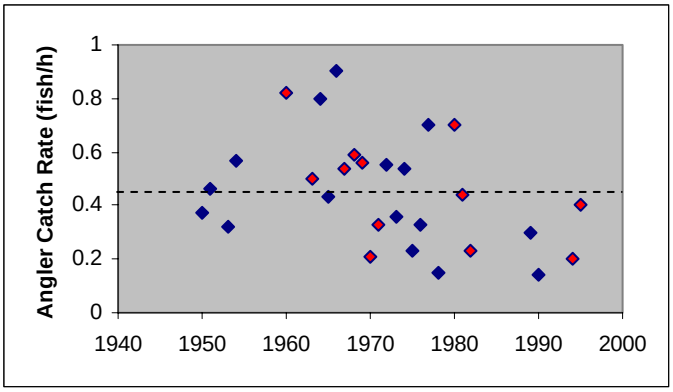



**Figure 5. Angler catch rates for years influenced by rotenone treatment (red) versus catch rates for years not influenced by rotenone treatment (blue). The data show that rotenone has not improved the fishery as is commonly believed.**

Fish stocking, however, can be adjusted. Since the 1940's when Island Park was first planted, stocking and hatchery programs have changed dramatically. A multitude of species, sizes and numbers have been stocked in the reservoir at different times of the years. Because of the variable stocking program, finding the right "recipe" is not as simple as it might sound. Using the 1980's as the reference (when catch rate data and anecdotal angler reports indicate the fishery was generally good) we have modified our stocking program. The most significant changes are tripling fingerling stocking from 250,000 to 750,000 and stocking the majority of the fish the late spring and early summer as opposed to the fall. We will conduct a creel survey in 2007 and use gillnets in the coming years to evaluate the success of the new program. With more water and more fish, anglers should enjoy better fishing in the years to come.

# South Fork of the Teton River Cutthroat Population Doing Well

When most people think of the Teton River fishery, they think of the Teton Valley. Certainly, the valley sees more angling pressure than the river below Rexburg; however, portions of the lower river, which splits into the North Fork and the South Fork do hold a respectable trout population. It remains important habitat for a population of Yellowstone cutthroat trout that moves between the lower Henrys Fork and the Teton River. In 2006, IDFG sampled the South Fork of the Teton below Highway 20 to assess the fishery and trout population trends.

In summary, the surveys showed the population has increased from previous surveys. We found 220 trout per mile, with a species composition of 68% cutthroat trout, 22% rainbow trout, and 10% brown trout. Although trout densities aren't high compared with some of the other regional streams such as the Henrys Fork, surprisingly, cutthroat densities are seven times higher than found recently in the Teton Valley. Particularly noteworthy was the size of the fish. We collected cutthroat trout up to 23 inches and brown trout up to 22 inches.

If you happen to explore the lower Teton River, please remember that the rules were changed in 2006 to prohibit harvest of cutthroat trout in the Teton River and its tributaries. Also, most adjacent land is privately owned—so ask first!

*The Upper Snake Region is known for its passionate anglers, active conservation groups and non-governmental organizations. In addition, we are fortunate to have an outstanding group of scientists in our partner agencies and Universities that help IDFG to accomplish its mission. We are proud of our efforts and accomplishments over the past year, but we know full well that we could accomplish very little without the cooperation and support from the many groups and individuals who help us. In addition to the countless anglers who've simply expressed support for what we do, we'd like to thank:*

*IDFG Volunteers*
*Henrys Fork Foundation*
*Trout Unlimited*
*Snake River Cutthroats*
*Henrys Lake Foundation*
*Friends of the Teton River*
*Upper Snake Flyfishers*
*Teton Regional Land Trust*
*Idaho Falls Elks Club*
*The Nature Conservancy*
*Greater Yellowstone Coalition*
*Fremont Madison Irr. District*
*Big Lost River Irr. District*
*Bureau of Reclamation*
*U.S. Forest Service*
*Bureau of Land Management*
*Fish and Wildlife Service*
*Rob Van Kirk (ISU)*
*Brett Roper (USU)*

## Another State Record From the Upper Snake Region

When Brian Allison went fishing on Ririe Reservoir, he didn't necessarily have splake on his mind. Even so, when he landed this monster, he did have an idea what it was, and he thought it might be a new record. An official weight confirmed that the fish, which was over 28 inches long, weighed 10 pounds 12.5 ounces making it the new state record.

Splake are a cross between a female lake trout and a male brook trout (also known as "speckled trout" hence the name "splake"). They were stocked in Ririe Reservoir between 1993 and 1999, with the majority being stocked in 1996. Mr. Allison's fish was likely about 10 years old.

## Idaho Falls Elks Club Helps Make Free Fishing Day a Success

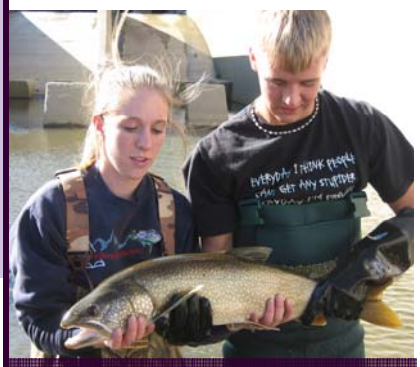
For decades Free Fishing Day has provided potential anglers an opportunity to try their hand at fishing without having to buy a license. IDFG holds fishing clinics at heavily stocked ponds and streams around the state to provide help to beginners. In the Upper Snake Region, we have held very successful clinics at Ashton, Victor, Rexburg, and Island Park. Unfortunately, the lack of a reliable fishing pond in Idaho Falls has limited our ability to serve our biggest population base.

In 2005, we worked with the Idaho Falls Elks Club and the City of Idaho Falls to hold a clinic on Willow Creek through Freeman Park. Though the clinic was immensely popular, we all recognized it could be improved if the stream had more pools and deep water to hold and distribute the fish. This prompted the Elks to volunteer their efforts to create instream structures that would create better holding water. In May, with the help of DEQ, the Elks and IDFG used equipment and boulders to get the job done. The new structures, with some additional help from a beaver who'd taken up residence in the area was a great improvement. When the Free Fishing Day Clinic was held in June, over 400 kids, and their parents and 32 Elk members came out to the event.

Between the construction project and the clinic itself, the Elks donated over 330 hours and hundreds of dollars worth of food and equipment. Their efforts helped make the event a huge success in 2006, and laid the foundation for great clinics in the future.

## Madison High Students Help With Fish Rescue

When the Bureau of Reclamation had to dewater the stilling basin below Palisades Dam last September, they contacted IDFG to assist with a fish rescue. We, in turn, invited the students of Madison High Schools' "Fish, Wildlife, and Outdoor Recreation" class to help out with the effort.



Kelsey Day and Nick Zufelt hold a large lake trout rescued from the stilling basin.

The result? Not only were about 400 fish moved from the stilling basin to the main river, but 28 happy students had the chance to spend the morning handling fish, learning about electrofishing, and practicing species identification. Thanks to Mr. Johnson, Mr. Bair and their enthusiastic students for helping make the day a success!